Installing the S4810 System

Publication Date: November 2012

Notes, Cautions, and Warnings

NOTE: A NOTE indicates important information that helps you make better use of your computer.

CAUTION: A CAUTION indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.

WARNING: A WARNING indicates a potential for property damage, personal injury, or death.

Information in this publication is subject to change without notice.
© 2012 Dell Force10. All rights reserved.

Reproduction of these materials in any manner whatsoever without the written permission of Dell Inc. is strictly forbidden.

Trademarks used in this text: Dell™, the DELL logo, Dell Precision™, OptiPlex™, Latitude™, PowerEdge™, PowerVault™, PowerConnect™, OpenManage™, EqualLogic™, KACE™, FlexAddress™ and Vostro™ are trademarks of Dell Inc. Intel®, Pentium®, Xeon®, Core™ and Celeron® are registered trademarks of Intel Corporation in the U.S. and other countries. AMD® is a registered trademark and AMD Opteron™, AMD Phenom™, and AMD Sempron™ are trademarks of Advanced Micro Devices, Inc. Microsoft®, Windows®, Windows Server®, MS-DOS® and Windows Vista® are either trademarks or registered trademarks of Microsoft Corporation in the United States and/or other countries. Red Hat Enterprise Linux® and Enterprise Linux® are registered trademarks of Red Hat, Inc. in the United States and/or other countries. Novell® is a registered trademark and SUSE ™ is a trademark of Novell Inc. in the United States and other countries. Oracle® is a registered trademark of Oracle Corporation and/or its affiliates. Citrix®, Xen®, XenServer® and XenMotion® are either registered trademarks or trademarks of Citrix Systems, Inc. in the United States and/or other countries. VMware®, Virtual SMP®, vMotion®, vCenter®, and vSphere® are registered trademarks or trademarks of VMWare, Inc. in the United States or other countries.

Other trademarks and trade names may be used in this publication to refer to either the entities claiming the marks and names or their products. Dell Inc. disclaims any proprietary interest in trademarks and trade names other than its own.

November 2012 P/N —

Contents

1 About this Guide

Information Symbols and Warnings 7
Related Publications 8

2 The S4810 System

Introduction 9
Orderable S4810 Components 10
Features 11
Ports 12
System Status 12
LED Displays 12

3 Site Preparations

Site Selection 15
Cabinet Placement 16
Rack Mounting 16
Grounding 16
Fans and Airflow 16
Power 16
Storing Components 17

4 Install the S4810

Install the S4810 Chassis in a Rack or Cabinet 19
Attach the Mounting Brackets into a Two-Post Rack or Cabinet 19
Install the System into a Two-Post Rack or Cabinet 20
Attach the Mounting Brackets into a Four-Post Rack or Cabinet. 21
Install the System into a Four-Post Rack or Cabinet 23
Attach the Ground Cable. 23
Install the SFP+ and QSFP+ Optics 24
Remove the SFP+ and QSFP+ Optics 24
Splitting QSFP Ports to SFP+ Ports 25
Important Points to Know: 25
Connect the Stacking Ports (Optional) 25
Important Points to Know. 26
Connect Two S4810 Systems 27
Connect Three S4810 Systems 28
Supply Power and Power Up the System 29
Power Up Sequence 30
AC Power 30

DC Power. 30
Hot-Swap Units in a Stack 31

5 Power Supplies

Components 33
Install an AC or DC Power Supply 35
Replace an AC or DC Power Supply 35

6 Fans

Components 37
Install a Fan Module 38
Replace a Fan Module 38

7 Console Ports

Access the RJ-45 Console Port (RS-232). 39
Access the RJ-45 Console Port with a DB-9 Adapter 40

8 Specifications

Chassis Physical Design. 41
Environmental Parameters 41
AC Power Requirements 41
DC Power Requirements 42
IEEE Standards 42
Agency Compliance 42
Network Equipment Building Systems (NEBS) Compliance 42
USA Federal Communications Commission (FCC) Statement 43
Canadian Department of Communication Statement 43
European Union EMC Directive Conformance Statement. 43
Japan: VCCI Compliance for Class A Equipment 44
Korean Certification of Compliance 45
Safety Standards and Compliance Agency Certifications 45
Electromagnetic Compatibility (EMC) 45
Product Recycling and Disposal 46
SD Card Removal 47
Battery Replacement 48

9 Technical Support

The iSupport Website 53
Accessing iSupport Services 53
Contacting the Technical Assistance Center 54

Requesting a Hardware Replacement 55

1

About this Guide

This guide provides site preparation recommendations, step-by-step procedures for rack mounting and desk mounting, inserting optional modules, and connecting to a power source.

After you have completed the hardware installation and power-up of the S4810, for software configuration information, refer to the *FTOS Configuration Guide for the S4810 System* and for Command Line Interface (CLI) information, refer to the *FTOS Command Line Reference Guide for the S4810 System.*

NOTE: User port stacking requires Dell Force10 Operating System (FTOS) version 8.3.7.1 or 8.3.7.2. FTOS version 8.3.8.0 does NOT support stacking. For information about upgrading the S4810 system, refer to the *FTOS Release Notes for the S4810 System*. If you have any questions regarding FTOS versions and system upgrades, contact Dell Force10 Technical Support.

CAUTION: To avoid electrostatic discharge (ESD) damage, wear grounding wrist straps when handling this equipment.

WARNING: Only trained and qualified personnel can install this equipment. Read this guide before you install and power up this equipment. This equipment contains two power cords. Disconnect both power cords before servicing.

WARNING: This equipment contains optical transceivers, which comply with the limits of Class 1 laser radiation.

WARNING: When no cable is connected, visible and invisible laser radiation may be emitted from the aperture of the optical transceiver ports. Avoid exposure to laser radiation and do not stare into open apertures.

Information Symbols and Warnings

This documents uses the graphic symbols in Table 1-1 to bring attention to hazards that exist when handling the S4810 and its components. Read these alerts and heed their warnings and cautions.

Table 1-1. Information Symbols

Symbol	Warning	Description
	Note	This symbol informs you of important operational information.
	Caution	This symbol indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.

Table 1-1. Information Symbols *(continued)*

Symbol	Warning	Description
	Warning	This symbol informs you about hardware handling that could result in injury.
	ESD Warning	This symbol informs you that you must take electrostatic precautions when handling the device.

Related Publications

For more information about the S4810 system, refer to the following documents:

- *FTOS Configuration Guide for the S4810 System*
- *FTOS Command Line Reference Guide for the S4810 System*
- *FTOS Release Notes for the S4810 System*

NOTE: For the most recent documentation and software, visit iSupport (registration for access to some sections is required): http://www.force10networks.com/CSPortal20/Main/SupportMain.aspx

2

The S4810 System

Introduction

The Dell Force10 S4810 platform has 640Gbps switching bandwidth. It supports forty-eight 10GbE SFP+ ports, four 40GbE QSFP+ ports, and two power supplies for redundancy. For system access, the S4810 includes an RS-232/RJ-45 console port and a management port. The S4810 Power Supply Unit (PSU) side (Figure 2-1) contains the PSU and fan modules. The S4810 Input/Output (I/O) side (Figure 2-2) contains the 48 1G/10G SFP+ auto-sensing ports, four 40G QSPFP ports, management ports, and stacking identification.

Figure 2-1. S4810 PSU-Side View

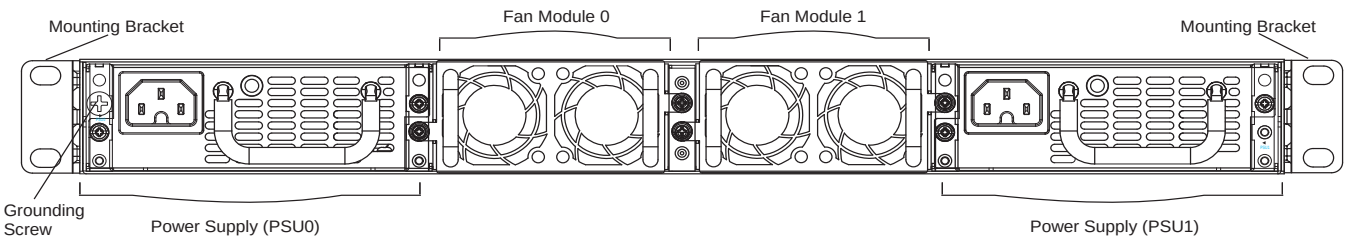
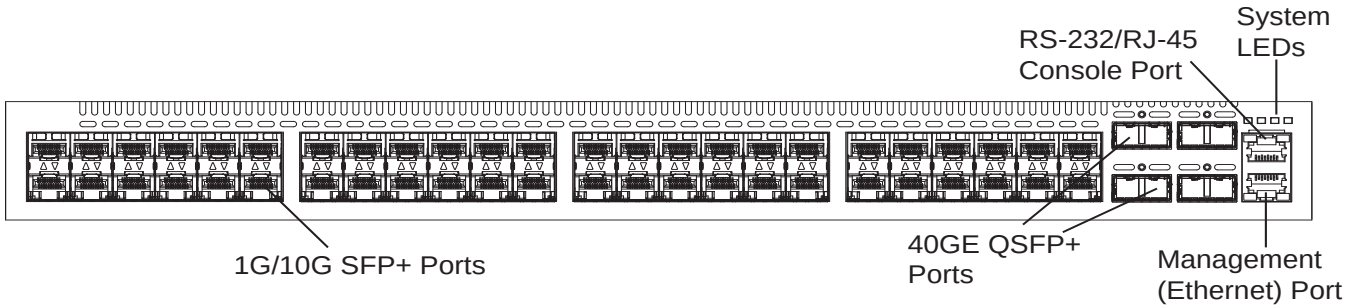


Figure 2-2. S4810 I/O-Side View



NOTE: The SFP+ ports (Figure 2-2) are labeled 0-47. When you cable these ports, be sure not to interfere with the airflow from the small vent holes above and below the ports.

Orderable S4810 Components

You can order the S4810 system in several different configurations. You can also order optional modules and optics separately.

Table 2-1. Supported Hardware Components

Hardware	Force10 Catalog Number	Dell Part Number
48 port 10G SFP+ ports with 4 QSFP+ 40G ports, 1 AC power supply and 2 fan subsystems (airflow from I/O side to power supply side)	**S4810P-AC**	**W9C6F**
48 port 10G SFP+ ports with 4 QSFP+ 40G ports, 1 AC power supply and 2 fan subsystems (airflow from power supply side to I/O side)	**S4810P-AC-R**	**2947V**
48 port 10G SFP+ ports with 4 QSFP+ 40G ports, 1 DC power supply and 2 fan subsystems (airflow from I/O side to power supply side)	**S4810P-DC**	**J5WYH**
48 port 10G SFP+ ports with 4 QSFP+ 40G ports, 1 DC power supply and 2 fan subsystems (airflow from power supply side to I/O side)	**S4810P-DC-R**	**KNNMX**
S4810 Series – Fan with airflow from the I/O side to the PSU side	**S4810P-FAN**	**GCMX5**
S4810 Series – Fan with airflow from the PSU side to the I/O side	**S4810P-FAN-R**	**YTPNC**
S4810 Series – AC Power supply with airflow from the I/O side to the PSU side	**S4810P-PWR-AC**	**RVY43**
S4810 Series – AC Power supply with airflow from the PSU side to the I/O side	**S4810P-PWR-AC-R**	**6TRFG**
S4810 Series – DC Power supply with airflow from the I/O side to the PSU side	**S4810P-PWR-DC**	**NMG1T**
S4810 Series – DC Power supply with airflow from the PSU side to the I/O side	**S4810P-PWR-DC-R**	**6HYWF**

Table 2-2. Supported Optics

Optic Size	Optic Type	Reach (Meters)	Force10 Catalog Number	Dell Part Number
40 Gig	QSFP+ LR4 Long Reach Optic	10 KM (SMF)	**GP-QSFP-40GE-1LR**	**371VW**
	QSFP+	100 M (OM3 fiber) 150 M (OM4 fiber)	**GP-QSFP-40GE-1SR**	**RF2MY**
	Active Fiber Direct attach cable	10 M 50 M	**CBL-QSFP-40GE-10M** **CBL-QSFP-40GE-50M**	**0C2YV** **9JT65**
	Passive Copper Direct attach cable	1 M 5M	**CBL-QSFP-40GE-PASS-1M** **CBL-QSFP-40GE-PASS-5M**	**NWGTV** **V492M**

Table 2-2. Supported Optics *(continued)*

Optic Size	Optic Type	Reach (Meters)	Force10 Catalog Number	Dell Part Number
10 Gig	SFP+ LRM	220 M (FDDI-grade multi-mode, OM1, OM2, OM3)	**N/A**	**HMTNW**
	SFP+ SR	300 M	**GP-10GSFP-1S**	**WTRD1**
	SFP+ LR	10K M	**GP-10GSFP-1L**	**RN84N**
1 Gig	SFP SR	550 M	**GP-SFP2-1S**	**GF76J**
	SFP LR	10K M	**GP-SFP2-1Y**	**J6FGD**
	Copper SFP	100 M	**GP-SFP2-1T**	**VK6C4**
QSFP+ Breakout Cable	40GE QSFP+ to 4 SFP+ optical cable	5 M	**CBL-QSFP-4x10GSFP-5M**	**1X3JJ**
	SFP 40GE QSFP+ to 4 SFP+ passive breakout cable	5 M	**CBL-QSFP-4x10GSFP-PASS-5M**	**HVVVF**

To successfully install the S4810, ensure that you have the following:

- S4810 chassis (or multiple chassis, if stacking)
- At least one grounded AC power source per chassis
- Cable to connect the AC power source to the chassis (US power cables included)
- Mounting brackets for rack installation (included)
- Screws for rack installation and #1 and #2 Phillips screwdrivers (not included)
- Ground cable (not included)
- Ground cable screws (included)
- Copper/fiber cables

Other optional components are:

- Additional power supply unit
- Additional fan module
- Additional mounting brackets (if installing in a 4-post rack or cabinet)

Features

The S4810 offers the following:

- S4810 CPU and switch processor
- Up to six stacked units on FTOS 8.3.12.0 release; up to three stacked units on previous releases (not supported on FTOS 8.3.8.x and 8.3.10.x)
- Stackable switch features (not supported on FTOS 8.3.8.x and 8.3.10.x)

- Hot-swappable redundant power supply
- Support for mixed power supply types
- 19-inch rack-mountable
- Standard 1U chassis height
- Up to 128K MAC address entries supported with hardware assisted aging
- Supports 12K jumbo frames

Ports

- External Serial RS-232 port (RJ45 type)
- Forty-eight 10Gbps SFP+ ports for a 1G/10G transceiver
- Four 40Gbps QSFP+ ports for a 40G transceiver

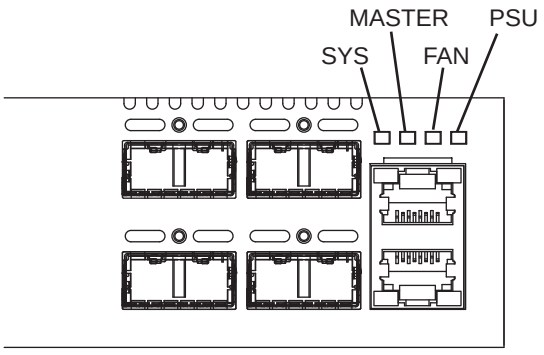
System Status

You view S4810 status information in several ways, including Light Emitting Diodes (LEDs) and boot menu options. You can also view status information through the Command Line Interface (CLI) **show** commands and with Simple Network Management Protocol (SNMP) traps. For more information about these options, refer to the *FTOS Command Line Reference Guide for the S4810 System* and the *FTOS Configuration Guide for the S4810 System*.

LED Displays

As shown in Figure 2-3, the S4810 includes LED displays on the I/O side of the chassis. When the S4810 powers up or reloads, the PSU LED is solid yellow.

Figure 2-3. S4810 LEDs



The S4810 system LEDs are:

- System status (SYS)
- Stack Master indicator (MASTER)
- Fan status (FAN)

- Power status (PSU)

Additionally, the PSUs and fans have LEDs that indicate their individual status:

- PSU status
- Fan tray status
- System

Table 2-3 lists the S4810 system LED displays.

Table 2-3. System LED Displays

Label	LED Color/Display	Description
System status	Off	No power
Located on I/O panel	Green blinking	Booting, or system in diagnostic mode
	Green solid	Normal operation
	Red solid	Critical alarm
	Red blinking	non-critical alarm
Stack Master indicator	Off	Unit is a stack member
Located on I/O panel	Green blinking	Unit is the stack standby
	Green solid	Unit is the Stack Master
Fan status	Green solid	Fan present and working normally
Located on I/O panel	Yellow solid	Fan failed or not inserted
Power status	Off	No power
Located on I/O panel	Green solid	Normal operation
	Yellow blinking	One power supply failed
Fan tray status	Green solid	Fan tray present and working normally
Located on the Fan	Red solid	Fan tray failed
Power supply status (AC OK)	Off	No power
Located on the PSU	Green solid	Power supply present and working

In addition to the system LEDs, each port has status indicator LEDs (Table 2-4).

Table 2-4. Port LED Displays

Feature	Description
QSFP+ Port LED	Link LED • Green—Link up on this port at 40G speed • Blinking Green—Activity, transmitting, or receiving packet at this port
SFP+ Port LED	Link LED • Green—Link up on this port at 10G speed • Blinking Green—Activity, transmitting, or receiving packet at this port

Table 2-4. Port LED Displays

Feature	Description
Management (Ethernet) Port LEDs	Link LED (on the left side of each port) • Green—Link up on this port at 1G speed • Yellow—Link up on this port at 100M or 10M speed • Off—No link Activity LED (on the right side of each port) • Blinking Green—Activity, transmitting, or receiving packet at this port • Off—No traffic

3

Site Preparations

The S4810 is suitable for installation as part of a Common Bond Network (CBN). It can be installed in:

- network telecommunication facilities
- data centers
- other locations where the National Electric Code (NEC) applies

This chapter contains the following sections:

- Site Selection
- Cabinet Placement
- Rack Mounting
- Grounding
- Fans and Airflow
- Power
- Storing Components

For more information about S4810 specifications, refer to Chapter 8, Specifications.

NOTE: Install the S4810 system into a rack or cabinet before installing any optional components.

Site Selection

Dell Force10 Networks' equipment is intended for installation in restricted access areas. A restricted access area is one in which access can only be gained by service personnel through the use of a special tool, lock, key or other means of security and access is controlled by the authority responsible for the location.

Ensure that the area where you install your S4810 system meets the following safety requirements:

- Near an adequate power source. Connect the system to the appropriate branch circuit protection as defined by your local electrical codes.
- Environmental temperature between 32° to 104°F (0° to 40°C).
- Relative humidity that does not exceed 85% non-condensing.
- In a dry, clean, well-ventilated and temperature-controlled room, away from heat sources such as hot air vents or direct sunlight.
- Away from sources of severe electromagnetic noise.
- Positioned in a rack or cabinet, or on a desktop with adequate space in the front, rear, and sides of the S4810 for proper ventilation and access.

Cabinet Placement

Install the S4810 only in indoor cabinets designed for use in a controlled environment as described in Site Selection. Do not install the S4810 in outside plant cabinets.

The cabinet must meet the following criteria:

- Minimum cabinet size and airflow are according to the Electronic Industries Alliance (EIA) standard.

Rack Mounting

When you prepare your equipment rack, ensure that the rack is earth ground. The equipment rack must be grounded to the same ground point used by the power service in your area. The ground path must be permanent.

Grounding

Use the S4810 in a Common Bond Network (CBN). You must connect the grounding cables as described in Chapter 4, Install the S4810.

Fans and Airflow

The S4810 fans support two airflow options. Be sure to order the fans suitable to support your site's ventilation. Use a single type of airflow fan in your system. Do not mix reverse and normal airflows in a single S4810 chassis.

- Normal—airflow is from the I/O panel to the power supply
- Reversed—airflow is from the power supply to the I/O panel

For proper ventilation, position the S4810 in an equipment rack (or cabinet) with a minimum of five inches (12.7cm) of clearance around the exhaust vents. When you install two S4810 systems near each other, position the two chassis at least five inches (12.7cm) apart to permit proper airflow. The acceptable ambient temperature ranges are listed in Environmental Parameters.

The fan speed increases when the internal temperature reaches 72°C and decreases to normal speed when the temperature falls to 58°C. The switch never intentionally turns off the fans.

Use the **show logging** command to see the log messages. For more information, refer to the System Logs chapters of the *FTOS Command Ling Reference Guide for the S4810 System* and *FTOS Configuration Guide for the S4810 System*.

Power

Use the appropriate power cord with the Z4810 system to connect the chassis to the applicable power source. An AC power cord is included with the system.

When installing AC systems, follow the requirements of the National Electrical Code, ANSI/NFPA 70 where applicable.

The system is powered-up as soon as the power cord is connected between the system and the power source.

CAUTION: Always disconnect the power cable before you service the power supply slots.

CAUTION: Use the power supply cord as the main disconnect device on the AC system. Ensure that the socket-outlet is located/installed near the equipment and is easily accessible.

Storing Components

If you do not install your S4810 and components immediately, Dell Force10 recommends properly storing the system and all optional components until you are ready to install them.

WARNING: Electrostatic discharge (ESD) damage can occur when components are mishandled. Always wear an ESD-preventive wrist or heel ground strap when handling the S4810 and its accessories. After you remove the original packaging, place the S4810 and its components on an antistatic surface.

Follow these storage guidelines:

- Storage temperature must remain constant ranging from -4° to 158° F (-20°C to 70° C).
- Store on a dry surface or floor, away from direct sunlight, heat, and air conditioning ducts.
- Store in a dust-free environment.

4

Install the S4810

To install the S4810 system, Dell Force10 recommends completing the installation procedures in the order presented in this chapter.

Always handle the S4810 and its components with care. Avoid dropping the system or its Field Replaceable Units (FRUs).

This chapter describes the installation procedures as follows:

1. Install the S4810 Chassis in a Rack or Cabinet
   a. Attach the Mounting Brackets into a Two-Post Rack or Cabinet
   b. Install the System into a Two-Post Rack or Cabinet
   c. Attach the Mounting Brackets into a Four-Post Rack or Cabinet
   d. Install the System into a Four-Post Rack or Cabinet
2. Attach the Ground Cable
3. Install the SFP+ and QSFP+ Optics
4. Splitting QSFP Ports to SFP+ Ports
5. Connect the Stacking Ports (Optional)
6. Supply Power and Power Up the System

WARNING: Electrostatic discharge (ESD) damage can occur if components are mishandled. Always wear an ESD-preventive wrist or heel ground strap when handling the S4810 and its components. As with all electrical devices of this type, take all the necessary safety precautions to prevent injury when installing this system.

Install the S4810 Chassis in a Rack or Cabinet

Attach the Mounting Brackets into a Two-Post Rack or Cabinet

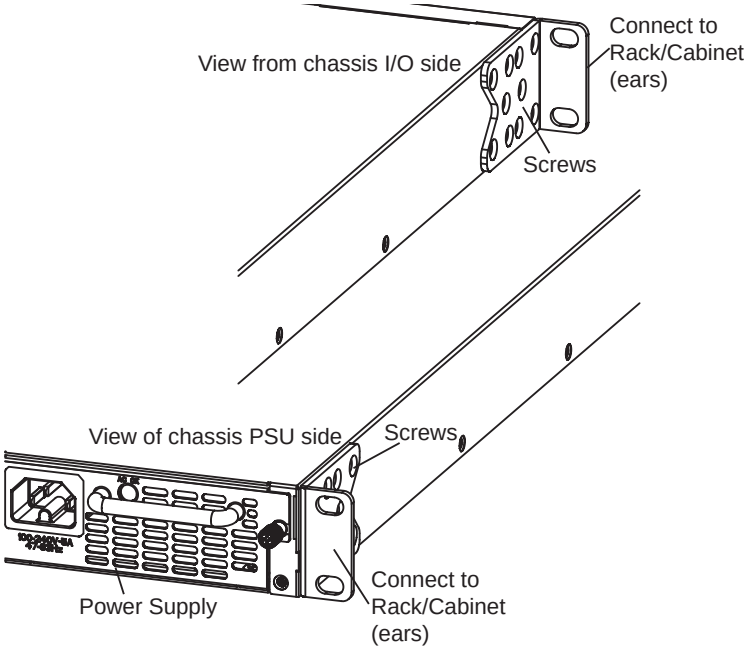
The S4810 is shipped with mounting brackets (rack ears) and the required screws for a two-post rack or cabinet installation. The brackets are enclosed in a package with the system.

NOTE: Dell Force10 recommends attaching the brackets at the Power Supply Unit (PSU) side. This provides the greatest weight support for the chassis in the rack or cabinet.

To attach the brackets to the system, follow these steps:

Step	Task
1	Take the brackets and screws out of their packaging.

Step	Task *(continued)*
2	Attach the brackets to the PSU sides of the system using four screws for each bracket. Attach the bracket so that the “ear” is parallel to the PSU and the outside of the system.



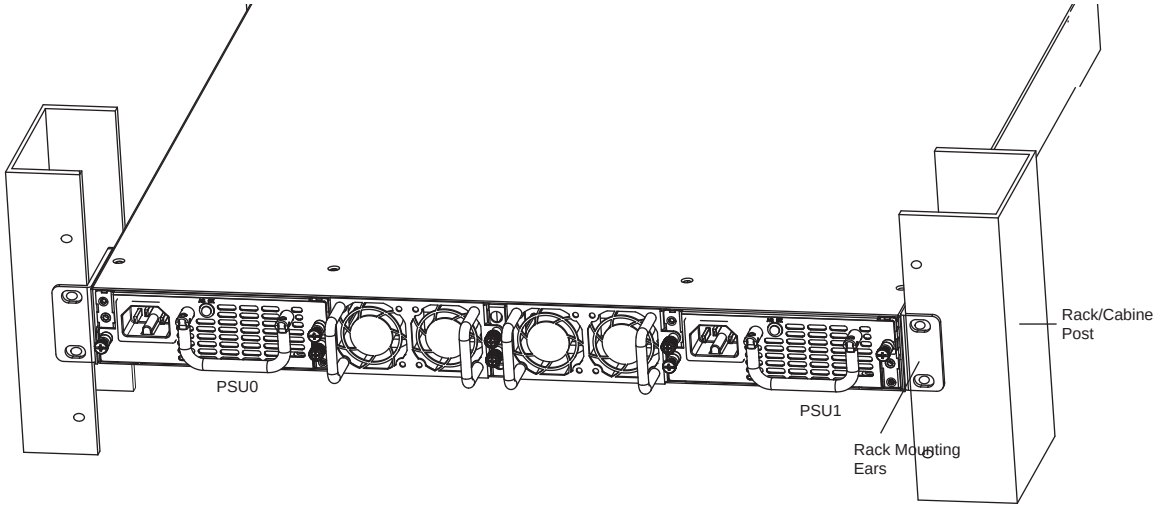
Install the System into a Two-Post Rack or Cabinet

Ensure that there is adequate clearance surrounding the rack or within the cabinet to permit access and airflow.

To install a system into a two-post 19-inch equipment rack using the already attached mounting brackets, follow these steps:

Step	Task
	NOTE: Dell Force10 recommends using one person to hold the S4810 chassis in place while another person attaches the brackets to the posts.

Step	Task *(continued)*
3	Attach the bracket “ears” to the rack or cabinet posts using the two screws for each bracket. Ensure the screws are tightened firmly.



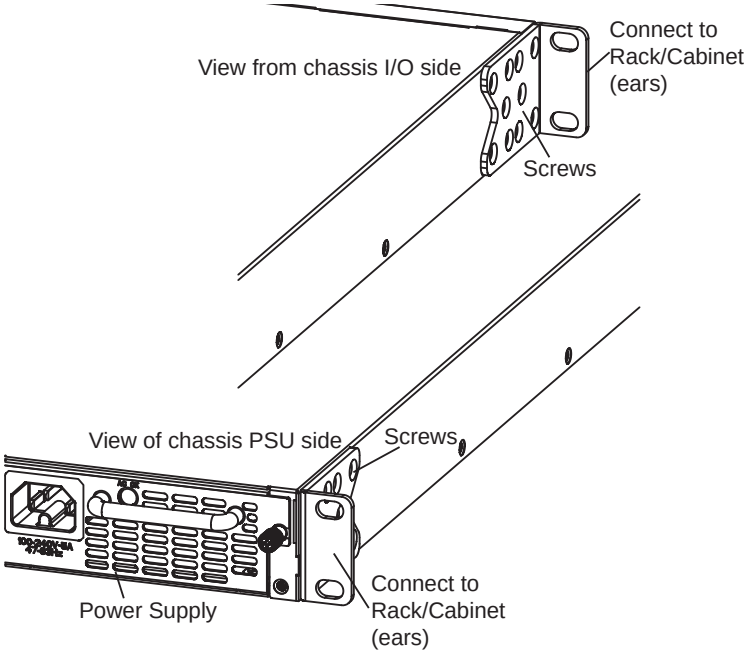
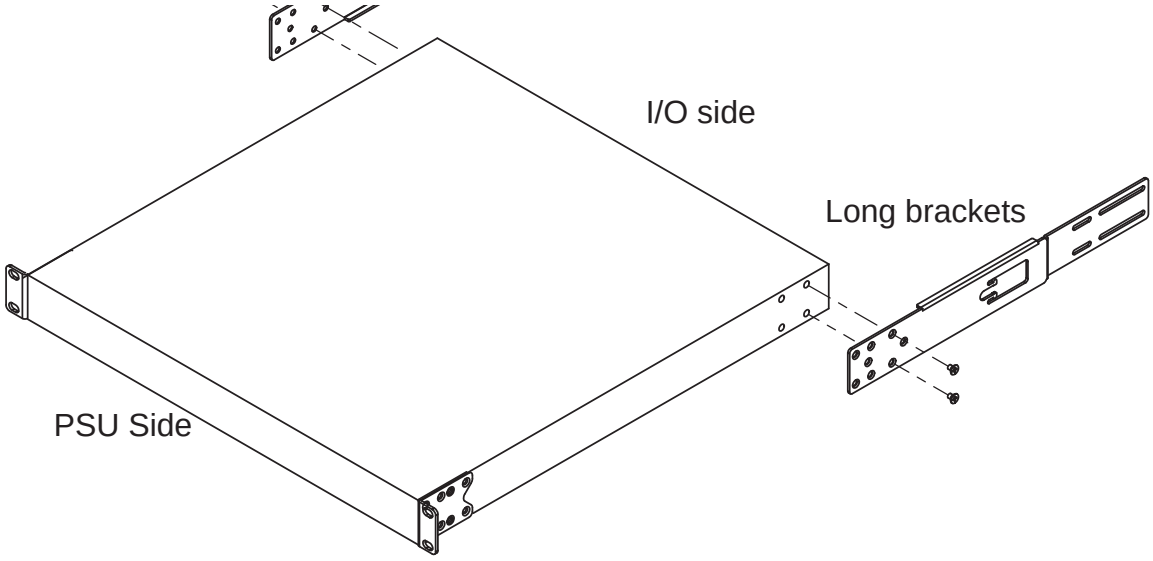
Attach the Mounting Brackets into a Four-Post Rack or Cabinet

The S4810 is shipped with mounting brackets (rack ears) and the required screws for a two-post rack or cabinet installation. To install the S4810 in a four-post rack or cabinet, you must order additional brackets separately (Catalog # SA-01-RMB-06). Use the brackets included with the S4810 on the I/O side of system and use the brackets you ordered separately on the PSU side of the system.

Unlike the two-post installation, the four-post installation requires attaching brackets to the rack prior to installing the system.

To attach the brackets to the rack or cabinet, follow these steps:

Step	Task
1	Ensure that there is adequate clearance surrounding the rack or within the cabinet to permit access and airflow.
2	Take the brackets and screws out of their packaging.

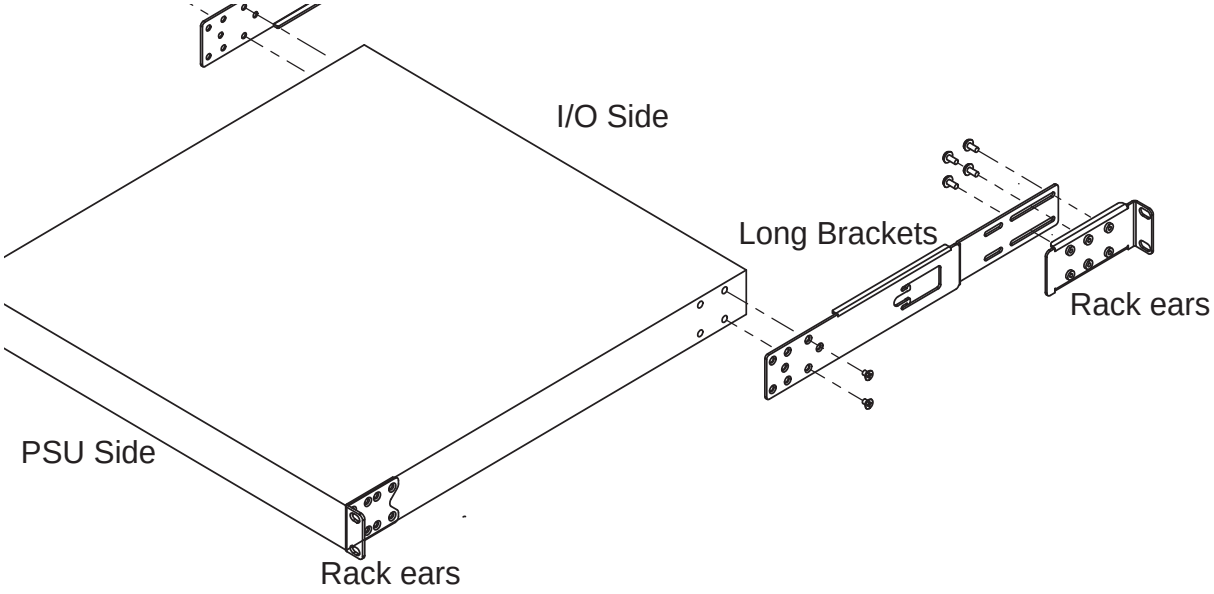
Step	Task *(continued)*
3	Attach the brackets to the PSU sides of the chassis using four screws for each bracket. Attach the bracket so that the "ear" is parallel to the PSU and the outside of the chassis. 
4	Attach the long bracket to each side of the chassis using the provided countersink screws. Use two screws on each side of the chassis. 
5	Install the rack mount ears into the I/O-facing posts using rack mount screws (not included with the system). **NOTE:** The rack mount ears must be mounted so that the system is level when fully installed.
6	Using the provided pan head screws, attach the rack ears on the I/O facing posts to the long bracket (attached to the system). Tighten the pan head screws to secure.

Install the System into a Four-Post Rack or Cabinet

Ensure that there is adequate clearance surrounding the rack or within the cabinet to permit access and airflow.

To install a system into a four-post equipment rack using the already attached mounting brackets, follow these steps:

Step	Task
1	Install the system into the rack. Ensure the long brackets dock into the previously installed rack ears.
2	Fasten the system to the PSU-facing posts using rack mount screws (not included with the system).



3	Use the provided pan head screws to attach the rack ears on the I/O-facing posts to the long bracket previously attached to the system. Tighten the pan head screws to secure the system.

Attach the Ground Cable

Use a single M4x0.7 screw to attach the ground cable to the chassis. The cable itself is not included with the S4810. To properly ground the chassis, Dell Force10 recommends using a 6AWG one-hole lug, #10 hole size, 63" spacing (not included in shipping). The one-hole lug must be a UL recognized, crimp-type lug.

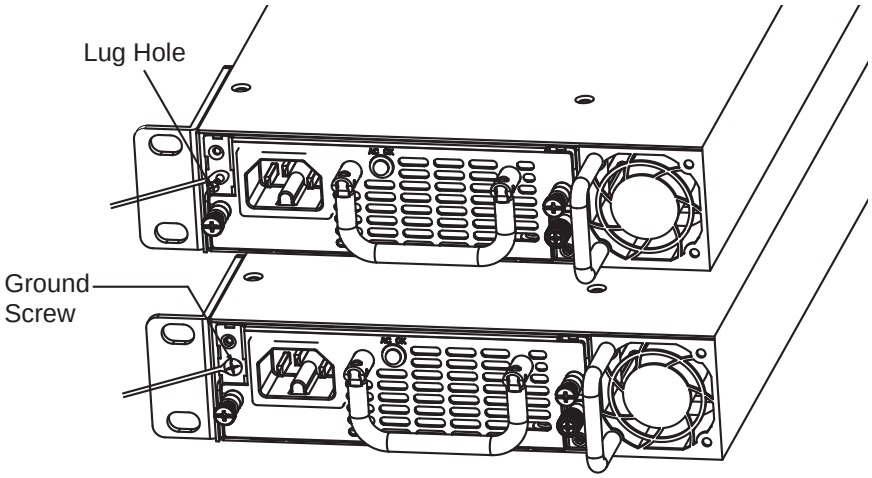
. **NOTE:** The rack installation “ears” are not suitable for grounding.

. **CAUTION:** Grounding conductors *must* be made of copper. Do not use aluminum conductors.

To connect the ground cable to the system, follow these steps:

. **NOTE:** Coat the one-hole lug with an anti-oxidant compound prior to crimping. Also, bring any un-plated mating surfaces to a shiny finish and coat with an anti-oxidant prior to mating. Plated mating surfaces must be clean and free from contamination.

Step	Task
1	Take the one M4x0.7 screw from the package.

Step	Task *(continued)*
2	Cut the cable to the desired length. The cable length must facilitate proper operation of the fault interrupt circuits. Dell Force10 recommends using of the shortest cable route allowable.
3	Attach the one-hole lug to the chassis using the supplied 10-32 screw with the captive internal tooth lock washer. Torque the screw to 20 in-lbs. 
4	Attach the other end of the ground cable to a suitable ground point. The rack installation ears are not a suitable grounding point.

Install the SFP+ and QSFP+ Optics

The S4810 has 48 SFP+ optical ports and four QSFP+ optical ports. For supported optics, refer to http://www.force10networks.com/products/specifications.asp.

WARNING: ESD damage can occur if components are mishandled. Always wear an ESD-preventive wrist or heel ground strap when handling the S4810 and its components.

WARNING: When working with optical fibers, follow all warning labels and always wear eye protection. Never look directly into the end of a terminated or unterminated fiber or connector as it may cause eye damage.

To install SFP+ or QSFP+ optics into an open port, follow these steps:

Step	Task
1	Position the optic so it is in the correct position. The optic has a key that prevents it from being inserted incorrectly.
2	Insert the optic into the port until it gently snaps into place. **NOTE:** Both rows of QSFP+ ports require that the 40G optics be inserted with the tabs facing up.

Remove the SFP+ and QSFP+ Optics

Remove an optic by pushing the tab on the optic and sliding the optic from the port.

When removing optics with Direct Attach Cables (DACs) from the port, pull the release tab firmly and steadily. Prior to pulling the release tab, you may need to gently push the optic into the port to ensure it is seated properly. Do not jerk or tug repeatedly on the tab.

Splitting QSFP Ports to SFP+ Ports

The S4810 supports splitting a single 40G QSFP port into four 10G SFP+ ports using one of the supported breakout cables.

For the system to recognize the port type change, you must enter the **stack-unit portmode** command. For example:

stack-unit *stack-unit* port *number* portmode quad

- *stack-unit*: Enter the stack member unit identifier of the stack member to reset. Range: 0 - 11.
- *number*: Enter the port number of the 40G port to be split. Range:0-31.

Important Points to Know:

- Splitting a 40G port into four 10G ports is supported only on a standalone unit.
- You cannot use split ports as stack-link to stack S4810 systems.
- Split ports in a S4810 system cannot be a part of any stacked system.
- The unit number with the split ports must be the default (stack-unit 0). You can verify this using the **show system brief** command. If the unit ID is not 0, you must renumber it to 0 before the ports are split by using the **stackunit id renumber 0** command in EXEC mode.
- The quad port must be in a default configuration before you can split it into four 10G ports. The 40G port is lost in the configuration when you split the port, so be sure the port is also removed from other L2/L3 feature configurations.
- For the split-port change to take effect, you must reload the system after issuing the command. Save your configuration.

Connect the Stacking Ports (Optional)

. **NOTE:** User Port Stacking is NOT supported on FTOS versions 8.3.8.x or 8.3.10.x.

Before you make your stacking port connections, rack-mount the systems or insert them into a cabinet. To connect the stacking ports, insert one end of the optical cable into a configured port and insert the other end of the optical cable into a similarly configured port of the adjacent system.

There are no unique stacking ports; you can configure the SFP and QSFP+ ports to act as stacking ports. The SFP ports are labeled 0-47. The QSFP+ ports are labeled 48 and 56 for the lower ports and 52 and 60 for the upper ports.

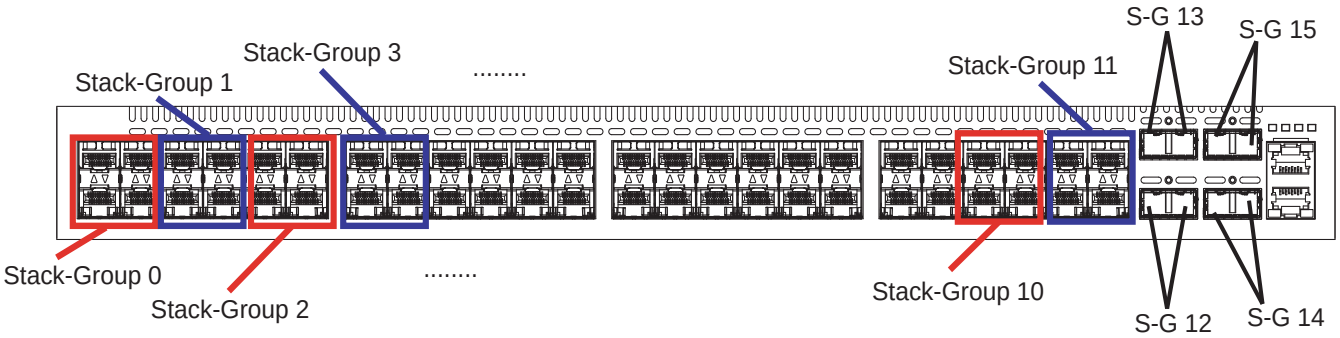
. **NOTE:** The S4810 system does not stack with other S-Series systems.

Important Points to Know

When stacking the S4810, keep the following in mind:

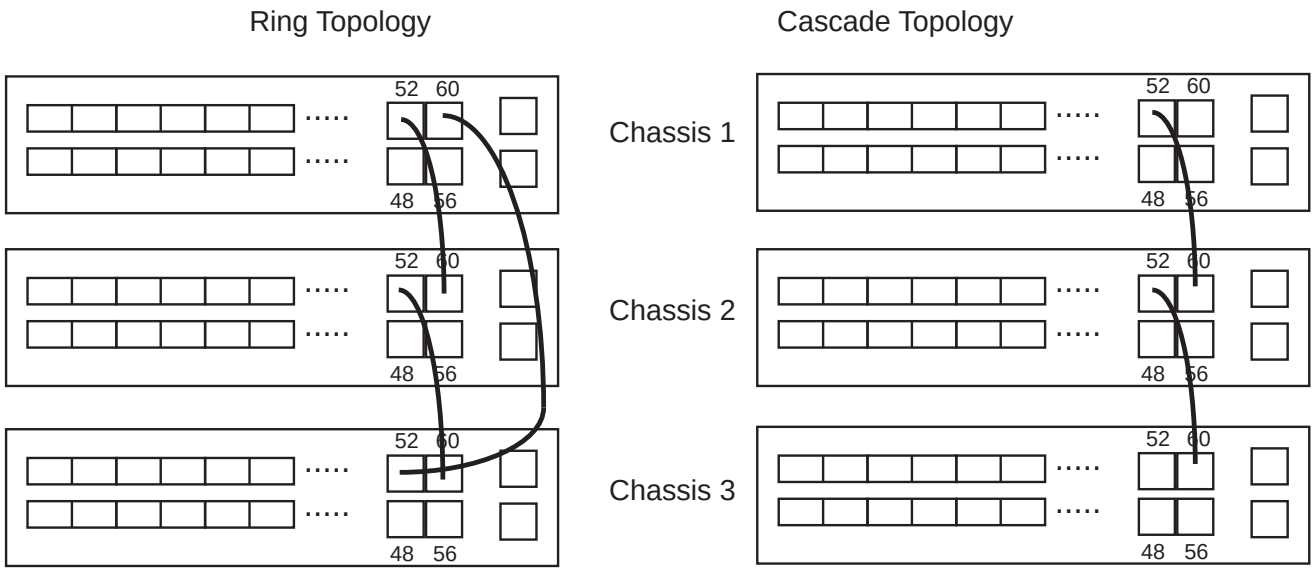
- Data ports are configured as stacking ports in predefined stacking groups of 40G (four 10G ports or one 40G port).
- When a stack-group number is assigned, the ports associated with that group are configured as stacking ports (Figure 4-1):
  - stack-group 0 = ports 0-3, stack-group 1 = ports 4-7, stack-group 2 = ports 8-11, and so on through stack-group 11 = ports 44-47.
  - stack-group 12 = port 48, stack-group 13 = port 52, stack-group 14 = port 56, stack-group 15 = port 60.
- All the ports in a stack-group are placed in stacking mode. You cannot use the unused ports in that group as data ports.

Figure 4-1. S4810 Stack-Group Assignments



You can connect the systems while they are powered down or up. Stacking ports are bi-directional. The S4810 supports stacking in either a ring or a cascade topology (Figure 4-2). To provide redundant connectivity, Dell Force10 recommends using the ring topology when stacking S4810 systems.

Figure 4-2. S4810 Stacking Topology



Connect Two S4810 Systems

To provide backup connectivity and increased data transfer between the systems, Dell Force10 recommends inserting an additional cable between the two units, in a second stacking port, as shown in Figure 4-3.

You can use any of the SFP+ or QSFP+ ports for stacking, provided it is configured as a stacking port.

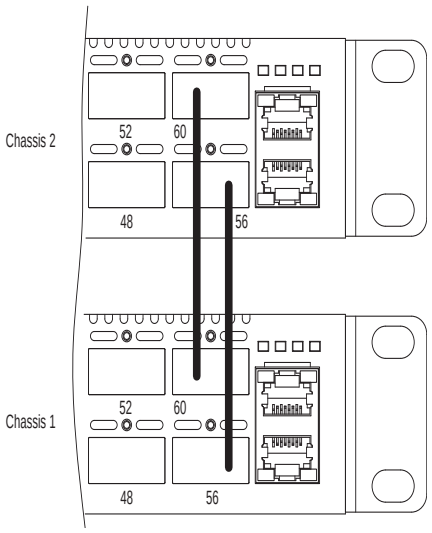
CAUTION: To connect S4810 systems, use only Dell Force10 supported stacking cables.

To connect two S4810 systems in a ring (Figure 4-3), starting with the S4810 at the bottom of the stack, follow these steps:

NOTE: The port numbers in the following procedure are examples only.

Step	Task
1	Insert one end of the first cable into stack port 60 in chassis 1 (bottom).
2	Insert the other end of the same cable into stack port 52 on chassis 2 (top).
3	Insert a second cable into stack port 56 on chassis 2 (top).
4	Insert the other end of the second cable into stack port 56 on chassis 1 (bottom).

Figure 4-3. Two S4810 Systems Connected in a Ring



Connect Three S4810 Systems

To provide backup connectivity and increased data transfer between the systems, Dell Force10 recommends inserting an additional cable between the two units, in a second stacking port, as shown in Figure 4-4.

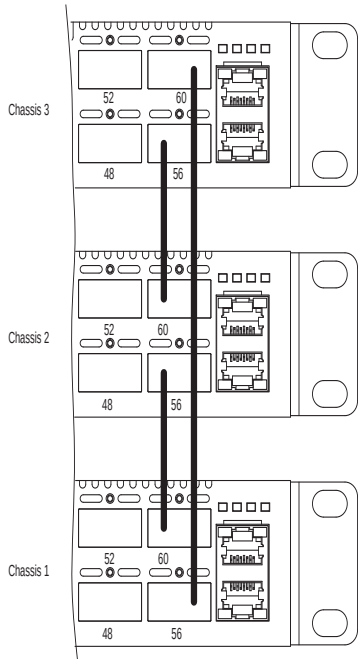
CAUTION: To connect S4810 systems, use only Dell Force10 supported stacking cables.

To connect three S4810 systems in a ring (Figure 4-4), starting with the S4810 at the bottom of the stack, follow these steps:

NOTE: The port numbers in the following procedure are used as examples only.

Step	Task
1	Insert one end of the first cable into stack port 60 of chassis 1 (bottom).
2	Insert the other end of the cable into stack port 52 of chassis 2 (center).
3	Insert the second cable into stack port 60 of chassis 2 (center) and port 52 the chassis 3 (top).
4	Use the third cable to connect the top and bottom units by inserting one end of the cable into stack port 56 on chassis 1 (bottom) and the other end of the cable into stack port 60 on chassis 3 (top).

Figure 4-4. Three S4810s Connected in a Ring



Supply Power and Power Up the System

Supply power to the S4810 after it is mounted in a rack or cabinet.

Dell Force10 recommends re-inspecting your system prior to powering up. Verify that:

- the equipment is properly secured to the rack and properly grounded.
- the equipment rack is properly mounted and grounded.
- the ambient temperature around the unit (which may be higher than the room temperature) is within the limits specified for the S4810.
- there is sufficient airflow around the unit.
- the input circuits are correctly sized for the loads and that you use sufficient over-current protection devices.
- all protective covers are in place.
- blank panels are installed if you do not install optional modules.

NOTE: A US AC power cable is included for powering up an AC power supply. You must order all other power cables separately.

WARNING: ESD damage can occur if components are mishandled. Always wear an ESD-preventive wrist or heel ground strap when handling the S4810 and its components.

Power Up Sequence

When the system powers up, the fans immediately come on at high speed. The fan speed slows as the system boots up.

The PWR Light Emitting Diode (LED) blinks until the boot-up sequence is complete. When the boot up is complete, the PWD LED is steadily lit.

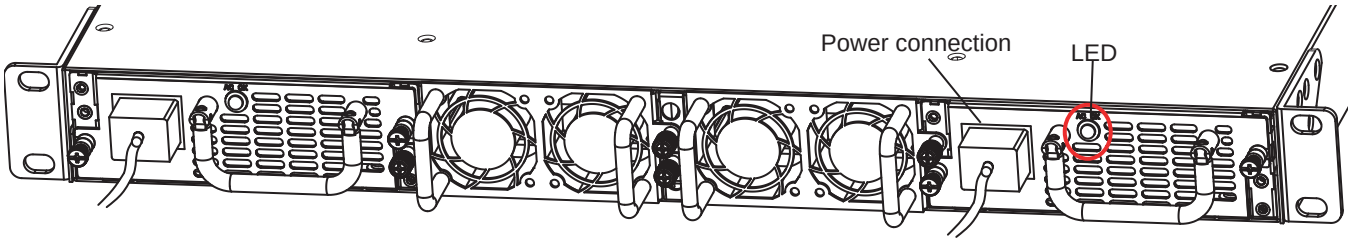
AC Power

CAUTION: Ensure that you correctly install the PSU. When correctly installed, the AC power connector is on the left side of the PSU and the status LED is at the top of the PSU (Figure 4-5).

To add AC power, connect the power cord plug to each AC power connector. Make sure the power cord is secure (Figure 4-5).

As soon as the cable is connected between the S4810 and the power source, the system is powered-up; there is no on/off switch.

Figure 4-5. AC Power Connection

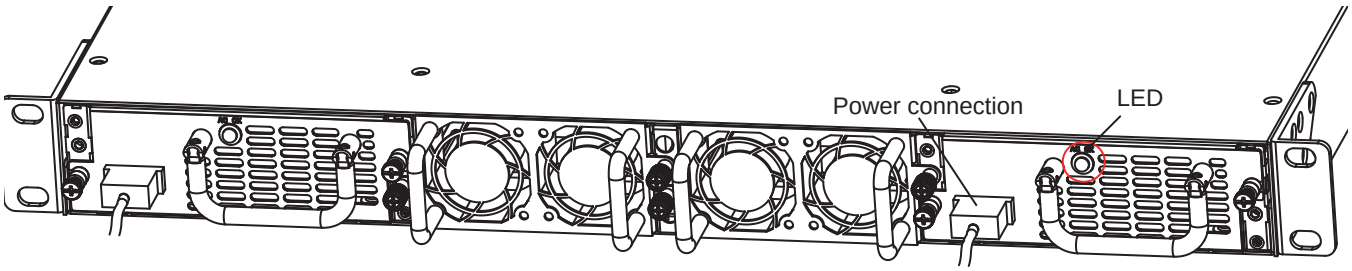


DC Power

To add DC power, connect the power cord plug to each DC power connector. Make sure the power cord is secure (Figure 4-6).

As soon as the cable is connected between the S4810 and the power source, the system is powered-up; there is no on/off switch.

Figure 4-6. DC Power Connection



Hot-Swap Units in a Stack

You can add, remove, or swap S4810 units in an existing stack. The units in the stack and the new units can be already powered up or powered down.

All units in a stack must run the same version of the operating system. If you attempt to attach a unit with a different version of the operating system to an existing stack, the CLI displays an error and the unit is not added until you install compatible software.

The order in which the units come on-line or are added to or removed from the stack affects how the stack identifies them and how the units identify themselves. This influences unit numbers, management addresses, and other elements of the configuration file.

Unit identification within the stack is determined by the identification algorithm you select. The default algorithm has the units self-identify as Unit 0 through Unit *last* based on the order in which they come on-line. So, when setting up a new set of switches in a stack, you should have no trouble forcing the identification of the management unit and unit IDs by methodically supplying power to the units in your preferred sequence.

Similarly, when you add a new unit to the stack, the unit is gracefully added as Unit *last* (the lowest unused number) with the current configuration. Attaching a new unit may cause each unit in the stack to reload. The subsequent configuration file in each unit includes the awareness of the new unit.

If you have a pre-configured unit that you want to add to the stack, but you want to make sure that the configuration does not override the configuration of the stack, add the unit while it is powered down to avoid stack management conflicts.

For more information about removing a unit from a stack and other stacking commands, refer to the Stacking chapter in the *FTOS Configuration Guide for the S4810 System* and the Stacking Commands chapter in the *FTOS Command Line Reference Guide for the S4810 System.*

5

Power Supplies

The S4810 supports two hot-swappable power supplies units (PSUs) with integrated fans that provide cooling for the system. The S4810 supports AC power supplies with two air-flow directions (normal and reversed). Two PSUs are required for full redundancy, but the system will operate with a single PSU.

NOTE: If you use a single PSU, you must install a blank plate in the other PSU slot. Dell Force10 recommends using power supply 1 (PSU1) as the blank plate slot.

The PSUs are field replaceable. When running with full redundancy (two power supplies installed and running), you can remove and replace one PSU while the other PSU is running without disrupting traffic.

The S4810 does not support mixing PSU types. You cannot replace an AC PSU with a DC PSU and you cannot replace an AC-R PSU with a DC-R PSU.

WARNING: Electrostatic discharge (ESD) damage can occur if components are mishandled. Always wear an ESD-preventive wrist or heel ground strap when handling the S4810 and its components.

CAUTION: To prevent electrical shock, ensure the S4810 is grounded properly. If you do not ground your equipment correctly, excessive emissions may result. Use a qualified electrician to ensure the power cables meet your local electrical requirements.

Components

The following power supply options are available for the S4810:

- AC power supply with integrated fan (Force10 Catalog# **S4810P-PWR-AC** | Dell Part # **RVY43**)
- AC power supply with integrated reverse flow fan (Force10 Catalog# **S4810P-PWR-AC-R** | Dell Part # **6TRFG**)
- DC power supply with integrated fan (Force10 Catalog# **S4810P-PWR-DC** | Dell Part # **NMG1T**)
- DC power supply with integrated reverse flow fan (Force10 Catalog# **S4810P-PWR-DC-R** | Dell Part # **6HYWF**)

Figure 5-1. AC Power Supply

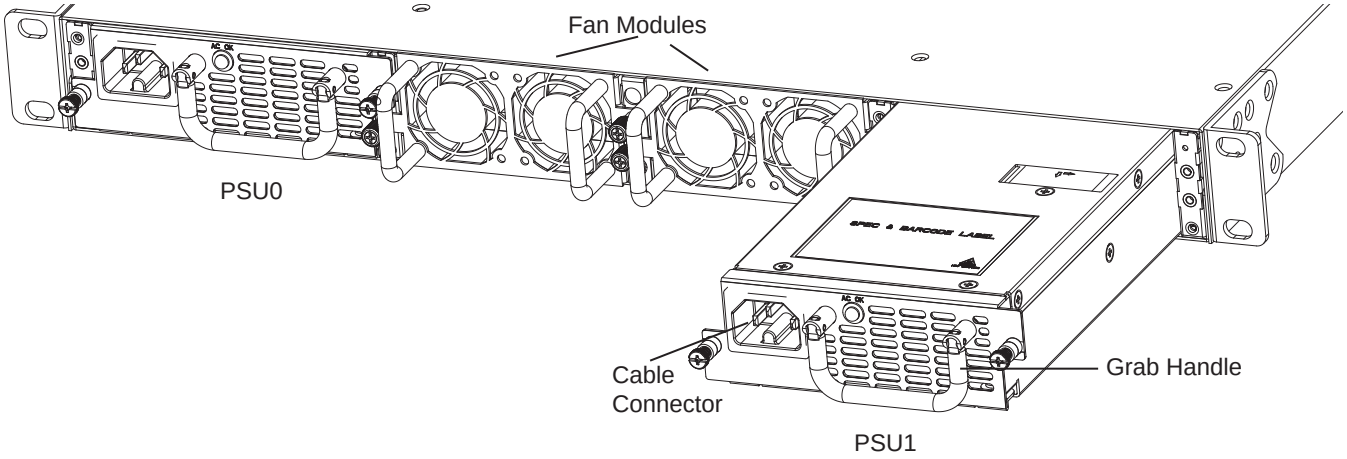
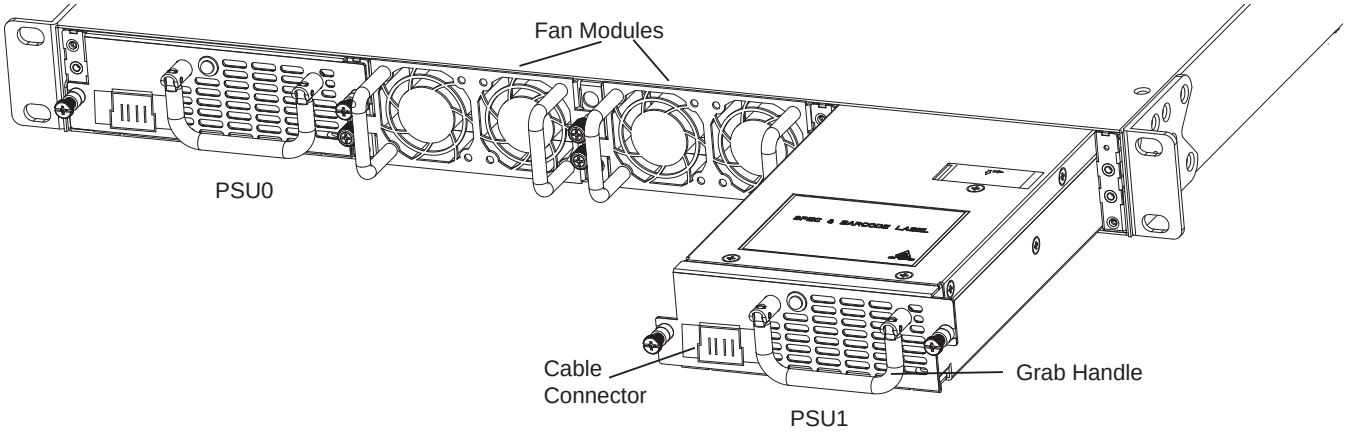


Figure 5-2. DC Power Supply



Power supply 0 (PSU0) is on the left side of the chassis; power supply 1 (PSU1) is on the right side of the chassis.

The PSUs in the S4810 are field replaceable. When both power supplies are installed and running, you can remove one power supply without interrupting traffic.

The PSUs are in a single piece with the PSU fans. You can replace the fan trays individually, but you cannot replace the fans that are attached to the PSUs—if the fans attached to the PSU fail, you must replace the entire PSU. For fan tray replacement procedures, refer to Chapter 6, Fans.

⚠. **WARNING:** Prevent exposure and contact with hazardous voltages. Do not attempt to operate this system with the safety cover removed.

⚠. **CAUTION:** Remove the power cable from the PSU prior to removing the PSU. Also, do not connect the power cable before you insert the PSU in the chassis.

⚠. **CAUTION:** The DC PSU comes with a 6-8 inch power cord with a snap-in plug that attaches to the DC power supply and screw terminals that attach to the main power. To ensure sufficient room, Dell Force10 recommends using a longer cable.

⚠. **CAUTION:** The power supply is marked + 48V -. Connect the **+** (plus sign) to the red cable on the 6-8 inch cord; connect the **-** (minus sign) to the black cable on the 6-8 inch cord. BE SURE TO connect the RED cable to RETURN and the BLACK cable to -48V.

NOTE: To comply with the GR-1089 Lightning Criteria for Equipment Interfacing with AC Power Ports, use an external SPD at the AC input of the router.

Install an AC or DC Power Supply

To install an AC or DC power supply, follow these steps:

NOTE: The PSU slides into the slot smoothly. Do not force a PSU into a slot as this may damage the PSU or the S4810 chassis.

NOTE: Ensure that the PSU is correctly installed. When the PSU is correctly installed, the power connector is on the left side of the PSU and the status LED is at the top of the PSU (refer to Figure 5-1 and Figure 5-2).

NOTE: If you use a single PSU, you must install a blank plate in the other PSU slot. Dell Force10 recommends using power supply 1 (PSU1) as the blank plate slot.

Step	Task
1	Take the PSU out of the shipping box.
2	Use the grab handle to slide the PSU into the power supply bay.
3	Tighten the securing screw at the top of the PSU.
4	Attach the power cables.
	NOTE: The system powers up *as soon as the cables are connected* between the power supply and the power source.

Replace an AC or DC Power Supply

To replace an AC or DC power supply, follow these steps:

NOTE: The PSU slides into the slot smoothly. Do not force a PSU into a slot as this may damage the PSU or the S4810 chassis.

NOTE: If a PSU fails, you must completely replace it. There are no field servicable components in the PSU. To request a hardware replacement, refer to Chapter 9, Technical Support.

NOTE: If you use a single PSU, you must install a blank plate in the other PSU slot. Dell Force10 recommends using power supply 1 (PSU1) as the blank plate slot.

Step	Task
1	Disconnect the power cable from the PSU.
2	Use the grab handle to slide the PSU out of the power supply bay.
3	Use the grab handle on the replacement PSU to slide it into the power supply bay.
4	Tighten the securing screws on the replacement PSU with a screwdriver. Ensure that the PSU is secure.
5	Attach the power cord to the replacement PSU.
	NOTE: The system powers up *as soon as the cables are connected* between the power supply and the power source.

6

Fans

The S4810 comes from the factory with one power supply unit (PSU) and two fan modules installed in the chassis. If two or more fans are installed and running, the fan modules and the integrated fan-power supply are hot-swappable.

NOTE: To run the system, both slots must have operating fan units. If a module is not installed in each slot (either as part of the PSU or as an independent fan module), the system shuts down in one minute.

In addition to the integrated fan/power supply modules, you can order and install fan modules separately.

The S4810 supports two airflow direction options. Do not mix airflow types in a chassis; you can use only a single airflow direction in a chassis. If the airflow directions are mismatched, the S4810 powers down in one minute.

- Normal—airflow is from the I/O panel to the PSU
- Reversed—airflow is from the PSU to the I/O panel

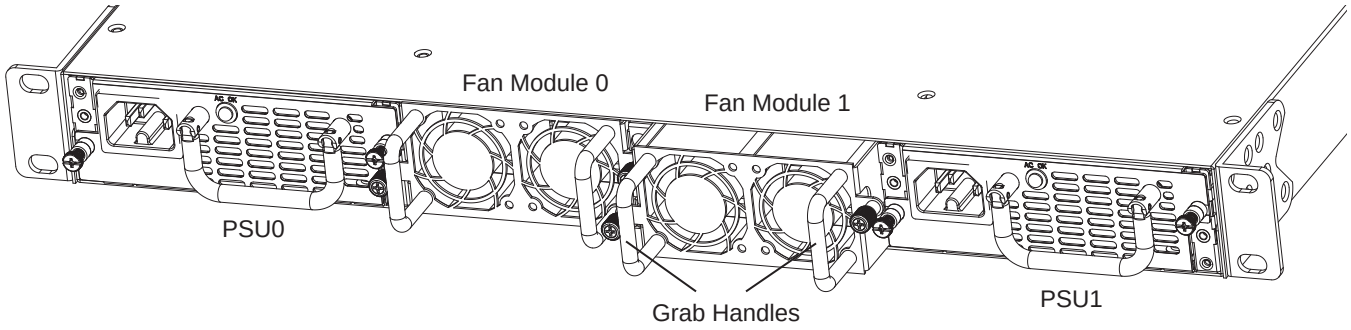
Environmental factors can decrease the amount of time required between fan replacements. Check the environmental factors regularly. An increase in temperature and/or particulate matter in the air might affect performance (for example, new equipment installation).

CAUTION: Check the fans at six-month intervals and replace them as necessary. Regularly monitor the speeds of the cooling fans in order to accurately determine replacement intervals.

Components

- S4810 Fan module (Force10 Catalog# **S4810P-FAN** | Dell Part # **GCMX5**)
- S4810 Fan module - Reverse flow (Force10 Catalog# **S4810P-FAN-R** | Dell Part # **YTPNC**)

Figure 6-1. S4810 Fan Modules



Install a Fan Module

CAUTION: DO NOT mix airflow directions. Both fans must use the same airflow direction (reverse or normal). If the airflows are mismatched, an error message appears and the system shuts down.

```
00:02:19: %S4810:0 %CHMGR-2-PSU_TYPE_AIRFLOW_MISMATCH: Mismatching PSU airflow
detected. Unit 0 shall get shutdown in next 60 seconds if mismatch not
rectified.

00:02:19: %STKUNIT0-M:CP %CHMGR-1-PSU_AIRFLOW_COMBO_MISMATCH: Major alarm:
Mismatching PSU airflow detected in unit 0
```

The fan modules in the S4810 are field replaceable. Module slot 0 is on the left side of the chassis; module slot 1 is on the right side of the chassis.

To install a fan module, follow these steps:

Step	Task
1	Take the fan module out of the shipping box.
2	Use the grab handle to slide the fan module into the bay.
3	Tighten the securing screws on the sides of the fan module.

Replace a Fan Module

To replace a fan module, follow these steps:

Step	Task
1	Loosen the securing screws on the sides of the fan module.
	CAUTION: You must complete steps 2 and 3 within one minute or the system powers down.
2	Use the grab handle to slide the fan module out of the bay.
3	Use the grab handle on the replacement module to slide it into the bay.
4	Tighten the captive screws on the replacement module with a screwdriver. Ensure the module is secure.

7

Console Ports

You can access the S4810 directly through the console port at the Input/Output (I/O) side of the system.

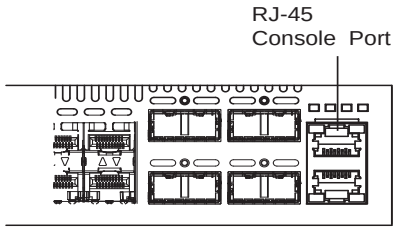
Access the RJ-45 Console Port (RS-232)

NOTE: Before starting this procedure, be sure you have a terminal emulation program already installed on your PC.

The RS-232/RJ-45 console port is labeled on the upper-right-hand side of the S4810 chassis (the I/O side) (Figure 7-1).

Table 7-1 lists the console port pinout assignments.

Figure 7-1. S4810 Serial Console Port Connector



To access the console port, follow these steps:

Step	Task
1	Install an RJ-45 copper cable into the console port. Use a rollover cable to connect the S4810 console port to a terminal server.
2	Connect the other end of the cable to the Dumb Terminal Emulator (DTE) server.
3	Keep the default terminal settings on the console as follows: • 9600 baud rate • No parity • 8 data bits • 1 stop bit • No flow control

Access the RJ-45 Console Port with a DB-9 Adapter

If the DTE has a DB-9 interface, you can connect to the console using an RJ-45 to DB-9 adapter along with the RJ-45 rollover cable. Table 7-1 lists the pin assignments.

Table 7-1. Pin Assignments Between the Console and a DTE Terminal Server

Console Port	RJ-45 to RJ-45 Rollover Cable		RJ-45 to DB-9 Adapter	Terminal Server Device
Signal	**RJ-45 Pinout**	**RJ-45 Pinout**	**DB-9 Pin**	**Signal**
RTS	1	8	8	CTS
NC	2	7	6	DSR
TxD	3	6	2	RxD
GND	4	5	5	GND
GND	5	4	5	GND
RxD	6	3	3	TxD
NC	7	2	4	DTR
CTS	8	1	7	RTS

8

Specifications

This chapter contains the following sections:

- Chassis Physical Design
- Agency Compliance

Chassis Physical Design

Parameter	Specifications
Height	1.73 inches (4.4 cm)
Width	17.32 inches (44.0 cm)
Depth	18.74 inches (47.6cm)
Chassis weight with factory-installed components	14.41 pounds (approx.) (6.54 kg)
Rack clearance required	Front: 5-inches (12.7 cm) Rear: 5-inches (12.7 cm)
Thermal dissipation	921 BTH/h (270W)
Power consumption	230 Watts (nominal) 270 Watts (maximum)

Environmental Parameters

Parameter	Specifications
Temperature	32° to 104°F (0° to 40°C) -40° to 158°F (-20° to 70°C)
Maximum altitude	No performance degradation to 10,000 feet (3,048 meters)
Relative humidity	10 to 85% non-condensing
Shock	MIL-STD-810

AC Power Requirements

Parameter	Specifications
Nominal input voltage	100 to 240 VAC, 47-63 Hz
Maximum AC power supply input current	4.20 A @ 100VAC 1.70 A @ 240 VAC
Maximum system power input	350 W

DC Power Requirements

Parameter	Specifications
Nominal input voltage	36 to 72 VDC
Maximum power supply input current	2.8A @ 36 VDC 1.85 A @ 72 VDC
Maximum system power input	360 W

IEEE Standards

The S4810 complies with the following IEEE standards:

- 802.3ae 10 Gigabit Ethernet
- 802.3ab 1000Base-T
- 802.1p L2 Prioritization
- 802.1Q VLAN Tagging, Double VLAN Tagging (Q in Q), GVRP
- 802.1s Multiple Spanning Tree Protocol
- 802.1w Rapid Spanning Tree Protocol
- 802.3ad Link Aggregation with LACP
- 802.1D Bridging, GARP, GMRP
- 802.3x Flow Control
- 802.1ac Frame Extension for VLAN Tagging
- 802.1x Port Based Network Access Control

Agency Compliance

Network Equipment Building Systems (NEBS) Compliance

- Use shielded cables for ports 0 - 43. You must ground the shields at both ends.
- Use only reverse airflow configurations in a NEBS-compliant installation. Use only AC supply S55-PWR-AC-R, DC supply S55-PWR-DC-R and Fan Only S55-FAN-R, Systems S55-44T-AC-R and S55-44T-DC-R.
- Fit the power supplies and fan modules with filter kits (S55-PWR-FLTR). You must replace the fan filters on a regular basis.
- Use this equipment with an external, second-level 6kV lightning Surge Protective Device (SPD) at the AC input of the building.

- Use a SPD with the AC power connections in order to protect the AC power supplies from damage from excessive power line surges.
- In order to comply with the GR-1089 Lightning Criteria for Equipment Interfacing with AC Power Ports, use a SPD at the AC input of the router.

⚠ **WARNING:** Electrostatic discharge (ESD) damage can occur if components are mishandled. Always wear an ESD-preventive wrist or heel ground strap when handling the S4810 and its components.

CAUTION:

USA Federal Communications Commission (FCC) Statement

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designated to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy. If it is not installed and used in accordance to the instructions, it may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case users will be required to take whatever measures necessary to correct the interference at their own expense.

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. Dell Force10 is not responsible for any radio or television interference caused by using other than recommended cables and connectors or by unauthorized changes or modifications in the equipment. Unauthorized changes or modification could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Canadian Department of Communication Statement

Industry Canada Class A emission compliance statement

This Class A digital apparatus complies with Canadian ICES-003.

Avis de conformité à la réglementation d'Industrie Canada

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

European Union EMC Directive Conformance Statement

This product is in conformity with the protection requirements of EU Council Directive 2004/108/EC on the approximation of the laws of the Member States relating to electromagnetic compatibility. Force 10 Networks can not accept responsibility for any failure to satisfy the protection requirements resulting from a non-recommended modification of this product, including the fitting of non-Dell Force10 option cards.

This product has been tested and found to comply with the limits for Class A Information Technology Equipment according to CISPR 22/European Standard EN 55022. The limits for Class A equipment were derived for commercial and industrial environments to provide reasonable protection against interference with licensed communication equipment.

⚠ **WARNING:** This is a Class A product. In a domestic environment, this device may cause radio interference, in which case, you may be required to take adequate measures.

European Community Contact
Dell Force10, EMEA - Central
Dahlienweg 19
66265 Heusweiler
Germany

http://www.force10networks.com/german/

Tel: +49 172 6802630

Email: EMEA Central Sales

Japan: VCCI Compliance for Class A Equipment

この装置は、情報処理装置等電波障害自主規制協議会（ＶＣＣＩ）の基準に基づくクラスＡ情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

This is Class A product based on the standard of the Voluntary Control Council For Interference by Information Technology Equipment (VCCI). If this equipment is used in a domestic environment, radio disturbance may arise. When such trouble occurs, the user may be required to take corrective actions.

⚠ **WARNING:** Use the AC power cords with Dell Force10 equipment only. Do not use Dell Force10 AC power cords with any unauthorized hardware.

本製品に同梱いたしております電源コードセットは、本製品専用です。本電源コードセットは、本製品以外の製品ならびに他の用途でご使用いただくことは出来ません。製品本体には同梱された電源コードセットを使用し、他製品の電源コードセットを使用しないで下さい。

Korean Certification of Compliance

A급 기기 (업무용 방송통신기자재)	이 기기는 업무용(A급) 전자파적합기기로서 판매자 또는 사용자는 이 점을 주의하시기 바라며, 가정외의 지역에서 사용하는 것을 목적으로 합니다.

Korean Package Label

	 [*equipment type*]
품명(Product Name)	Ethernet Switch
모델명(Model)	[*model number*]
신청인(Applicant)	Force10 Networks, Inc.
제조자(Manufacturer)	Delta Networks, (Dongguan) Ltd.
제조년월(Manufacturing Date)	[*date*]
제조국(Country of Origin)	China

Safety Standards and Compliance Agency Certifications

- CUS UL 60950-1, 2nd Edition
- CSA 60950-1-03, 2nd Edition
- EN 60950-1, 2nd Edition
- EN 60825-1, 1st Edition
- EN 60825-1 Safety of Laser Products—Part 1: Equipment Classification Requirements and User's Guide
- EN 60825-2 Safety of Laser Products—Part 2: Safety of Optical Fibre Communication Systems
- FDA Regulation 21CFR 1040.10 and 1040.11
- IEC 60950-1, 2nd Ed, including all National Deviations and Group Differences

Electromagnetic Compatibility (EMC)

Emissions

- International: CISPR 22: 2006, Class A
- Australia/New Zealand: AS/NZS CISPR 22:2009, Class A
- Canada: ICES-003, Issue-4, Class A
- Europe: EN55022 2006 (CISPR 22: 2006), Class A

- Japan: VCCI V-3/2011.04 Class A
- USA: FCC CFR47 Part 15, Subpart B, Class A

Immunity

- EN 300 386 v1.5.1:2010 EMC for Network Equipment
- EN55022 2006, Class A
- EN 55024 1998 + A1: 2001 + A2: 2003
- EN 61000-3-2 Harmonic Current Emissions
- EN 61000-3-3 Voltage Fluctuations and Flicker
- EN 61000-4-2 ESD
- EN 61000-4-3 Radiated Immunity
- EN 61000-4-4 EFT
- EN 61000-4-5 Surge
- EN 61000-4-6 Low Frequency Conducted Immunity

Product Recycling and Disposal

You must recycle or discard this system according to applicable local and national regulations. Dell Force10 encourages owners of information technology (IT) equipment to responsibly recycle their equipment when it is no longer needed. Dell Force10 offers a variety of product return programs and services in several countries to assist equipment owners in recycling their IT products.

Waste Electrical and Electronic Equipment (WEEE) Directive for Recovery, Recycle and Reuse of IT and Telecommunications Products

Dell Force10 switches are labeled in accordance with European Directive 2002/96/EC concerning waste electrical and electronic equipment (WEEE). The Directive determines the framework for the return and recycling of used appliances as applicable throughout the European Union. This label is applied to various products to indicate that the product is not to be thrown away, but rather reclaimed upon end of life per this Directive.

Figure 8-1. The European WEEE symbol

In accordance with the European WEEE Directive, electrical and electronic equipment (EEE) is to be collected separately and to be reused, recycled, or recovered at end of life. Users of EEE with the WEEE marking per Annex IV of the WEEE Directive, as shown above, must not dispose of end of life EEE as unsorted municipal waste, but use the collection framework available to customers for the return,

recycling and recovery of WEEE. Customer participation is important to minimize any potential effects of EEE on the environment and human health due to the potential presence of hazardous substances in EEE.

Dell Force10 products, which fall within the scope of the WEEE, are labeled with the crossed-out wheelie-bin symbol, as shown above, as required by WEEE.

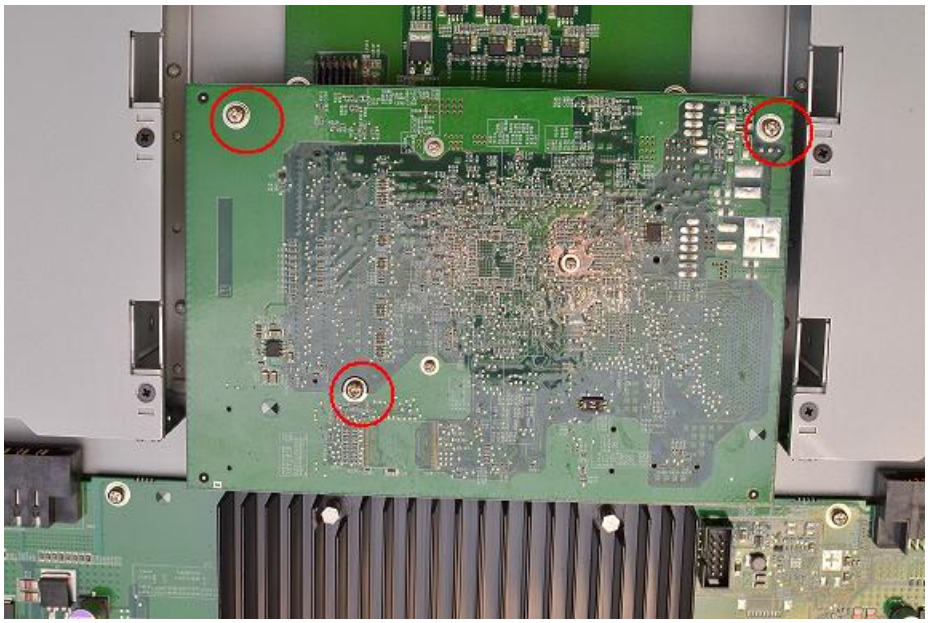
For information on Dell Force10 product recycling offerings, see the WEEE Recycling instructions on iSupport at: https://www.force10networks.com/CSPortal20/Support/WEEEandRecycling.pdf.
For more information, contact the Dell Force10 Technical Assistance Center (TAC) (see Contacting the Technical Assistance Center).

SD Card Removal

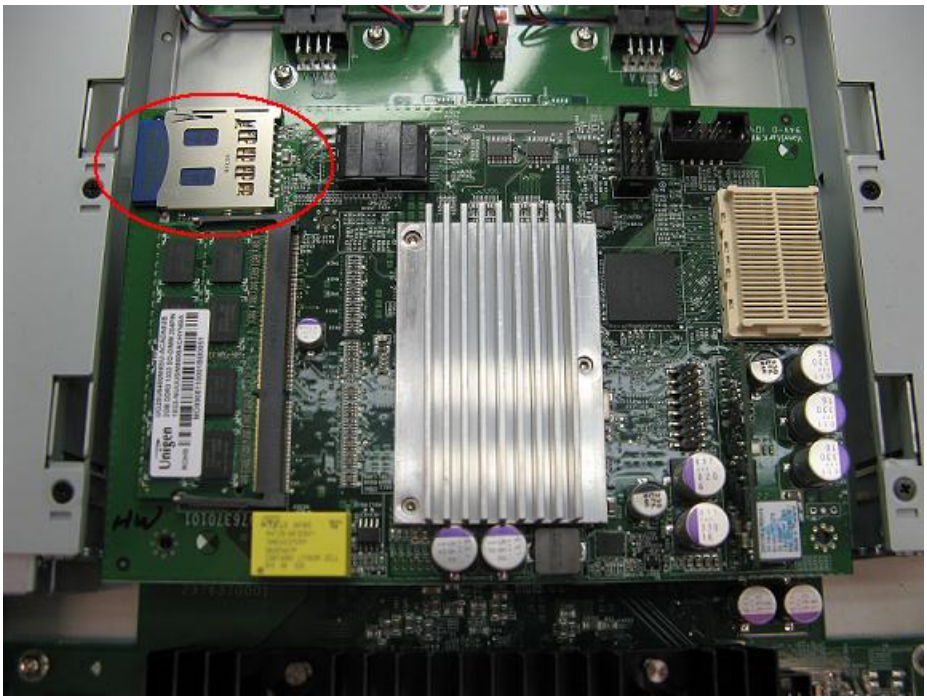
To support high security environments, you can remove and re-install the SD card. Dell Force10 recommends removing the SD card only when necessary. The SD card must be removed and replaced by authorized personnel only.

⚠ **CAUTION:** Only remove the SD card to support high security operations and after discussions with Dell Force10 Technical Support or your Dell Force10 representative.

To open the case and remove the SD card, follow these steps:

Step	Task
1	Remove the small Phillips screws that connect the top of the case to the body. There are three screws evenly spaced across the rear and three screws evenly spaced along each side.
2	Slide the top backwards until its front flange slides free of the faceplate then lift it off.
3	Remove the three larger Phillips screws and carefully lift off the CPU card. The SD card is located on the underside of the CPU card.
	
4	Gently push the SD card to release it from the slot.

Step	Task *(continued)*
5	Remove the card.



Battery Replacement

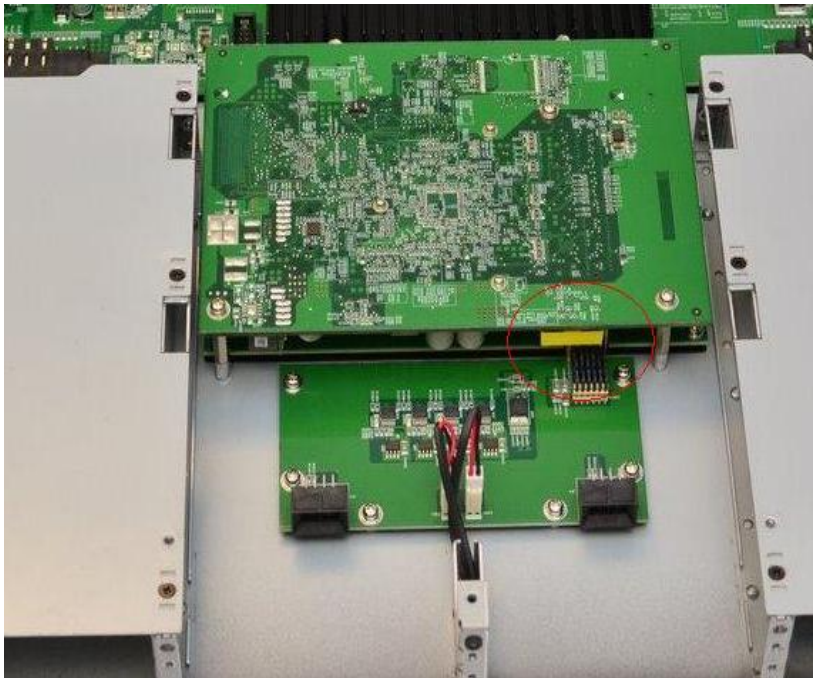
The lithium battery is *not field replaceable*. Only authorized personal should remove and replace the battery. If the battery requires replacement, contact Dell Force10 Technical Support.

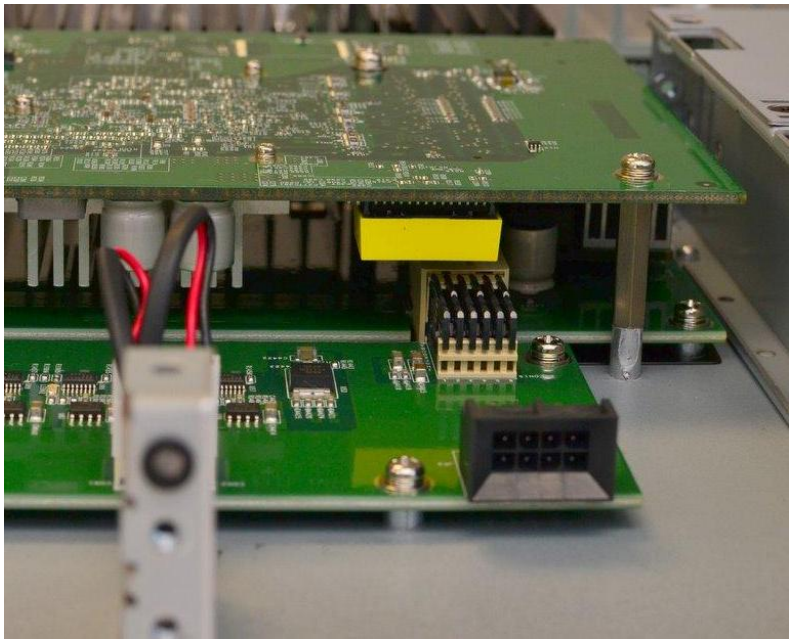
⚠ **WARNING:** ESD damage can occur if components are mishandled. Always wear an ESD-preventive wrist or heel ground strap when handling the S4810 and its components. As with all electrical devices of this type, take all the necessary safety precautions to prevent injury when installing this system.

To open the case, follow these steps:

Step	Task
1	Remove the small Phillips screws that connect the top of the case to the body. There are three screws evenly spaced across the rear and three screws evenly spaced along each side of the case.

Step	Task *(continued)*
2	Slide the top backwards until its front flange slides free of the faceplate then lift it off.





Batteries or packaging for batteries are labeled in accordance with European Directive 2006/66/EC concerning batteries and accumulators and waste batteries and accumulators. The Directive determines the framework for the return and recycling of used batteries and accumulators as applicable throughout the European Union. This label is applied to various batteries to indicate that the battery is not to be thrown away, but rather reclaimed upon end of life per this Directive.

In accordance with the European Directive 2006/66/EC, batteries and accumulators are labeled to indicate that they are to be collected separately and recycled at end of life. The label on the battery may also include a chemical symbol for the metal concerned in the battery (Pb for lead, Hg for mercury and Cd for cadmium). Users of batteries and accumulators must not dispose of batteries and accumulators as unsorted municipal waste, but use the collection framework available to customers for the return, recycling and treatment of batteries and accumulators.

Customer participation is important to minimize any potential effects of batteries and accumulators on the environment and human health due to the potential presence of hazardous substances. For proper collection and treatment, contact your local Dell Force10 representative.

Figure 8-2. The European WEEE Symbol

For California:

Perchlorate Material — Special handling may apply.
See: http://www.dtsc.ca.gov/hazardouswaste/perchlorate

The foregoing notice is provided in accordance with California Code of Regulations Title 22, Division 4.5 Chapter 33. Best Management Practices for Perchlorate Materials.

9

Technical Support

This chapter contains the following sections:

- The iSupport Website
- Contacting the Technical Assistance Center
- Requesting a Hardware Replacement

The iSupport Website

iSupport provides a range of documents and tools to assist you with effectively using Dell Force10 equipment and mitigating the impact of network outages. Through iSupport you can obtain technical information regarding Dell Force10 products, access to software upgrades and patches, and open and manage your Technical Assistance Center (TAC) cases. Dell Force10 iSupport provides integrated, secure access to these services.

Accessing iSupport Services

The URL for iSupport is http://www.force10networks.com/support/. You must have a userid and password to access iSupport services.

To request a userid and password, follow these steps:

Step	Task
1	On the Dell Force10 Support page, click the **Account Request** link.
2	Fill out the User Account Request form and click **Send**. You will receive your userid and password by E-mail.
3	To access iSupport services, click the **LOGIN** link and enter your userid and password.

Contacting the Technical Assistance Center

How to Contact Dell Force10 TAC	Log in to iSupport at http://www.force10networks.com/support/ and select the **Service Request** tab.

Information to Submit When Opening a Support Case	• Your name, company name, phone number, and E-mail address
	• Preferred method of contact
	• Model number
	• Software version number
	• Symptom description
	• Screen shots showing the symptom, including any error messages. This can include:
	  • Output from the **show tech-support [non-paged]** command (This report is very long so set the storage buffer in your terminal program to high.)
	  • Output from the **show logging eventlog [unit]** command, where unit is the stack ID of the member unit that experienced the failure (This report is included as a section in the output of the **show tech-support [non-paged]** command.)
	  • Console captures showing the error messages
	  • Console captures showing the troubleshooting steps taken
	  • Saved messages to a syslog server, if you use one

Managing Your Case	Log in to iSupport and select the **Service Request** tab to view all open cases and Return Materials Authorizations (RMAs).
Downloading Software Updates	Log in to iSupport and select the **Software Center** tab.
Technical Documentation	Log in to iSupport and select the **Documents** tab. You can access this page without logging in using the **Documentation** link on the iSupport page.
Contact Information	E-mail: support@force10networks.com Web: http://www.force10networks.com/support/. Telephone: • US and Canada: 866.965.5800 • International: 408.965.5800

Requesting a Hardware Replacement

To request replacement hardware, follow these steps:

Step	Task
1	Determine the part number and serial number of the component. To list the numbers for all components installed in the chassis, use the **show hardware** command.
2	Request a RMA number from TAC by opening a support case. Open a support case by: • Using the Create Service Request form on the iSupport page (see Contacting the Technical Assistance Center). • Contacting Dell Force10 directly by E-mail or by phone (see Contacting the Technical Assistance Center). Provide the following information when using E-mail or phone: • Part number, description, and serial number of the component. • Your name, organization name, telephone number, fax number, and E-mail address. • Shipping address for the replacement component, including a contact name, phone number, and E-mail address. • A description of the failure, including log messages. This can include: – Output from the **show tech-support [non-paged]** command (This report is very long so set the storage buffer in your terminal program to high.) – Output from the **show logging eventlog [unit]** command, where unit is the stack ID of the member unit that experienced the failure (This report is included as a section in the output of **show tech-support [non-paged]** command.) – Console captures showing the error messages – Console captures showing the troubleshooting steps taken – Saved messages to a syslog server, if you use one

Printed in the U.S.A.